

The Examiner is respectfully requested to reconsider his rejection of Claims 1 - 11, 22, 23, 29 and 30 under 35 U.S.C. 102(e) as being anticipated by Clem (United States Patent 6518,168).

Applicants have amended Claim 1 to define the invention more definitively. Applicants have amended Claim 1 to positively recite steps which distinguish the invention over Clem. Thus the basis for the *anticipation* rejection is now moot since the steps now recited in Claim 1 are not found in the Clem disclosure.

Clem discloses a technique for creating patterns of material deposited on a surface. Clem's process involves forming a self-assembled monolayer in a pattern on the surface and depositing, via *chemical vapor deposition* (CVD) or via *sol-gel processing*, a material on the surface in a pattern complementary to the self-assembled monolayer pattern.

Applicants' Claim 1 does not include any steps using CVD nor the sol gel process.

*Chemical Vapor Deposition* (CVD) involves chemical reactions which transform gaseous molecules, called a "precursor," into a solid material in the form of thin film or powder, on the surface of a substrate. This is clearly not a procedure used by Applicants in the instant process as now claimed in Claim 1.

The sol-gel process is a process for making ceramic and glass materials. In general, the sol-gel process involves the transition of a system from a liquid "sol" (mostly colloidal) into a solid "gel" phase. Applying the sol-gel process, it is possible to fabricate ceramic or glass materials in a wide variety of forms: ultra-fine or spherical shaped powders, ceramic fibers, microporous inorganic membranes, monolithic ceramics and glasses, or extremely porous aerogel materials.

The starting materials used in the preparation of the "sol" are usually inorganic metal salts or metal organic compounds such as metal alkoxides. In a typical sol-gel process, the precursor is subjected to a series of hydrolysis and polymeration reactions to form a colloidal suspension, or a "sol". Further processing of the "sol" enables one to make

ceramic materials in different forms. When the "sol" is cast into a mold, a wet "gel" will form. With further drying and heat-treatment, the "gel" is converted into dense ceramic or glass articles. If the liquid in a wet "gel" is removed under a supercritical condition, a highly porous and extremely low density material called "aerogel" is obtained. As the viscosity of a "sol" is adjusted into a proper viscosity range, ceramic fibers can be drawn from the "sol". Applicants do not disclose nor claim a sol-gel.

The Examiner's rejection of Claim 1 found on page 2 of the Office Action focuses on a "stamp" which Applicants are not now claiming.

The excerpts cited by the Examiner in the Office Action do not provide a proper basis for a rejection pursuant to 35 U.S.C. § 102(e) because they are not a positive recitation of the steps now found in Claim 1 as presently written.

Applicants respectfully submit that the specificity of the Clem disclosure does not rise to the level required to qualify as an appropriate anticipatory reference with respect to Applicant's invention.

Further, the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it. (Citations omitted) *In re Lonnie T. Spada et al.*, 911 F.2d 705, 708 (Fed. Cir. 1990).

The Clem method is directed to a totally different technique from that disclosed by Applicants. Clem states in the specification:

"The present invention involves the use of a blocking agent formed in a pattern on a substrate surface for directing materials deposition in the micron and submicron range. Lithography-free methods can be carried out using this technology for depositing patterned metals via CVD, metal oxides, and the like without the need for extensive subsequent processing..." Col. 5, lines 46 – 55.

After the above-cited text in the specification, Clem clearly distinguishes his invention from Applicants' invention stating:

A blocking agent such as a SAM is applied to surfaces (*sic*) serve to control nucleation and adhesion of overlayers of material from a precursor source, such as a CVD environment or a fluid precursor such as a sol gel. Material from such precursor sources adhere poorly and loosely to the blocking agent, or is formed thereon with poor structural characteristics, and can be removed from the blocking agent easily by thermal and/or mechanical agitation. (Emphasis added) Col. 5, line 62 – Cl. 6, line 3.

A further disclosure found in Clem which distinguishes it from the present invention states:

"A sol-gel precursor then is applied to the surface of the substrate by, for example, dip coating or spin-casting. After heat treatment amorphous oxide 19 forms at regions 22 and adheres well to the substrate, but above regions 20 oxide is poorly adhered and easily removed by thermal and/or mechanical agitation, resulting in the substrate 18 including oxide 19 patterned at portions 22 of the substrate surface, that is, deposited on the substrate surface in a pattern complementary to the SAM pattern (FIG. 1d)." (Emphasis added) Col. 6, lines 25 – 35.

The statements emphasized in the excerpts set forth above clearly establishes that Clem is teaching away from Applicants' invention. In fact the teaching of Clem is diametrically opposite to that of Applicants. In Clem, according to what is stated unequivocally immediately above, the material precursor **deposits NOT ONLY ON THE SUBSTRATE SURFACE, BUT ALSO ON THE BLOCKING AGENT AS WELL**. Applicants' Claim 1 positively recites the requirement that *the patterned thin film is formed only on the surface of the substrate that is NOT coated with the SAM*. Applicants' Claim 1 language provides a clear distinction with a difference over the Clem reference.

The Clem invention is disclosed *inter alia*:

"...FIGS. 1(a)-(d) illustrate schematically formation of a pattern of material on a substrate in accordance with the invention. In FIG. 1a an applicator 10 includes a surface 12 including indentations 14 and protrusions 15. The protrusions have outward-facing surfaces 16. Surface 12, at least outward-facing portions 16 thereof, is coated with a SAM-forming species 17. When the applicator is applied to substrate 18 and removed, a SAM is formed at regions 20 of the substrate contacted by outward-facing surfaces 16 (defining a stamping surface) of the protrusions, as illustrated in FIG. 1b. Intervening regions 22 of the substrate, which are not contacted by the stamping surface, are free of SAM. A sol-gel precursor then is applied to the surface of the substrate by, for example, dip coating or spin-casting. After heat treatment amorphous oxide 19 forms at regions 22 and adheres well to the substrate, but above regions 20 oxide is poorly adhered and easily removed by thermal and/or mechanical agitation, resulting in the substrate 18 including oxide 19 patterned at portions 22 of the substrate surface, that is, deposited on the substrate surface in a pattern complementary to the SAM pattern (FIG. 1d). The resulting article then can be exposed to conditions under which the oxide is crystallized." Col. 6, lines 14 – 36....

"...The central portion of molecules comprising SAM-forming molecular species generally includes a spacer functionality connecting the functional group selected to bind to a surface and the exposed functionality. Alternately, the spacer may essentially comprise the exposed functionality, if no particular functional group is selected other than the spacer. Any spacer that does not disrupt SAM packing and that allows the SAM layer to be somewhat impermeable to various reagents such as etching and plating reagents, as described below, in addition to organic or aqueous environments, is suitable. The spacer may be polar, nonpolar, positively charged,

negatively charged, or uncharged. For example, a saturated or unsaturated, linear or branched alkyl, aryl, or other hydrocarbon spacer may be used, as well as corresponding halogenated hydrocarbons, especially fluorinated hydrocarbons.” Col. 12, lines 23 – 37.

“...In this arrangement, the self-assembled monolayer is patterned onto the substrate surface using any method described herein or other method known to those of ordinary skill in the art. A prepolymer solution then is applied to the surface and, where the prepolymer solution is compatible with the exposed functionality of the self-assembled monolayer and incompatible with the surface of the substrate, the prepolymer solution assembles on the SAM in a pattern that corresponds to the SAM pattern. The prepolymer then can be polymerized. Where the prepolymer is compatible with the substrate surface, but incompatible with the functionality exposed by the SAM, the prepolymer will assemble in a pattern complementary to the pattern of the SAM, and can be polymerized as such. Where the prepolymer is polymerized in a pattern complementary to that of the SAM, the polymer is selected to be robust under conditions in which the SAM is removed and the prepolymer thereby directs deposition of material, via CVD or sol-gel processing, in a pattern complementary to that of the polymeric blocking agent, and in a pattern corresponding to the original SAM pattern. In this arrangement, if the chemical functionality exposed by the SAM is significantly polar, then the prepolymer should be relatively polar if it is desired that the blocking agent be formed on the SAM. Polar/nonpolar characteristics of a particular surface, SAM, and prepolymer can be selected and tailored in this technique to direct a blocking agent as desired. As in the above arrangement in which a polymeric blocking agent is formed in a pattern on the surface, in this arrangement if it is desired to provide a surface carrying solely a material deposited via CVD or sol-gel processing, the polymeric blocking agent is selected to be removable under conditions in which the deposited material remains...” Col. 18, line 56 – Col.19, line 21.

The three excerpts set forth above are representative of the method taught by Clem which disclose a material deposited via CVD or sol-gel processing. Clem discloses a self assembled monolayer of a molecular species in a pattern which acts to block chemical vapor deposition (CVD) where the SAM is formed, and exposing the surface to CVD conditions. (See also Col. 2, lines 45 – 48). The material in Clem is deposited to portions of the substrate free of the SAM utilizing chemical vapor deposition. The Clem material is deposited onto the substrate as a vapor. This is diametrically opposite to Applicants recitation in Claim 1 that the thin film material is deposited in liquid form.

Under modern decisions, “*anticipation*,” which is the basis for the Examiner’s rejections of Claims 1 – 11, 22, 23, 29 and 30, requires that each and every element of the claimed invention be disclosed in a single prior art reference. *In re Spada Id.* Those elements must be arranged as in the claims. *Constant v. Advanced Micro-Devices, Inc.*, 7 USPQ 2d 1560 (Fed. Cir. 1988).

“The term ‘anticipation’ in patent usage means that the invention was previously known to the public; that is, that it previously existed in the precise form in which it is claimed, including all of the limitations in the claim. . .the claim cannot be "anticipated" by prior art that does not have all of the limitations in the claim. *Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000) (anticipating reference must disclose "each and every limitation of the claimed invention"); *General Electric Co. v. Nintendo Co.*, 179 F.3d 1350, 1356-57 (Fed. Cir. 1999) ("To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter.")." (SmithKline Beecham Corp. v. Apotex Corp., 403 F.3d 1331 (Fed. Cir. April 8, 2005).)

Applicants have specified the differences defined in Claim 1 and have cited language in Clem which definitively establish that the Clem method does not anticipate Applicants' invention. Applicants' patterned thin film is formed only on the surface of the substrate that is not coated with the SAM, and Applicants are applying the thin film by immersion of the treated substrate into a liquid. These features alone serve to negate the Examiner's assertion of "anticipation."

Because each and every element of Claims 1 – 11, 23, 29 and 30 are not disclosed in the Clem patent, those claims are allowable. Such favorable action is respectfully solicited.

The Examiner is respectfully requested to reconsider his rejection of Claim 13 under 35 U.S.C. §103(a) as being unpatentable over Clem (United States Patent 6,518,168) as applied to Claim 5 and further in view of Chrisey et al. (United States Patent 5,688,642).

The non-applicability of the Clem patent to the instant claims is discussed in detail above, and the contents of such discussion is hereby incorporated by reference herein.

The Examiner states on page 4 of the Office Action: "Clem et al discloses the molecular species for the SAM includes "fluorinated hydrocarbon" (See Clem, Col. 11, lines 56-63). But is silent as to the 'fluorinated hydrocarbon' includes tridecafluoro 1,1,2,2-tetrahydrooctyl) trichlorosilane."

Referring to the section in the Clem patent cited by the Examiner, Clem states:

"Such functionality may be selected to create a SAM that is hydrophobic, hydrophilic, amphipathic, that selectively binds various biological or other chemical species such as proteins, antibodies, antigens, sugars and other carbohydrates, and the like. For example, ionic, nonionic, polar, nonpolar, halogenated, alkyl, aryl or other functionalities may exist at the exposed portion of the SAM. A nonlimiting, exemplary list of such functional groups includes those described above with respect to functional group attachment to the surface in addition to: --OH, --CONH--, --CONHCO--, --NH<sub>2</sub>, --NH--, --COOH, --COOR, --CSNH--, --NO<sub>2</sub>-, --SO<sub>2</sub>-, --RCOR-, --RCSR-, --RSR, --ROR-, --PO<sub>4</sub><sup>-3</sup>, --OSO<sub>3</sub><sup>-2</sup>, --SO<sub>3</sub>-, --NH<sub>x</sub>R<sub>4-x</sub><sup>+</sup>, --COO-, --SOO-, --RSOR-, --CONR<sub>2</sub>, --(OCH<sub>2</sub>CH<sub>2</sub>)<sub>n</sub> (where n = 1 - 20, preferably 1-8), --CH<sub>3</sub>, --PO<sub>3</sub>H-, -2-imidazole, --N(CH<sub>3</sub>)<sub>2</sub> --NR, --PO<sub>3</sub>H<sub>2</sub>, --CN, --(CF<sub>2</sub>)<sub>n</sub>CF<sub>3</sub> (where n = 1 - 20, preferably 1-8), olefins, and the like. In the above list, R is hydrogen or an organic group such as a hydrocarbon or fluorinated hydrocarbon. As used herein, the term "hydrocarbon" includes alkyl, alkenyl, alkynyl, cycloalkyl, aryl, alkaryl, aralkyl, and the like. The hydrocarbon group may, for example, comprise methyl, propenyl, ethynyl, cyclohexyl, phenyl, tolyl, and benzyl groups. The term "fluorinated hydrocarbon" is meant to refer to fluorinated derivatives of the above-described hydrocarbon groups. Additionally, R may be a biologically active species such as an antigen, antibody, hapten, etc. Such embodiments are described below, and attachment of such biologically active groups to molecular species 28 is known to those of ordinary skill in the art."

This non-limiting exemplary list is not the requisite specific teaching needed for a proper combination rejection, but rather is a catalogue of a myriad of functional groups presented in random format. This huge list provides an exponentially infinite number of combinations and permutations of functional groups or compounds without any suggestion of how any of these can be used for a specific purpose. Clem presents a "shotgun" disclosure of compounds but there is no connection to the prior art cited with it, as there is no specific suggestion in Clem that would direct the skilled artisan to Applicants' invention.

Chrissey et al. state as to the nature of their invention:

"The present invention relates generally to the attachment of nucleic acids to substrates and more particularly to the formation of a pattern of nucleic acid molecules attached to a substrate."

The skilled artisan would look at the objective of the Chrissey reference to determine if it was relevant with respect to the primary Clem reference. As to the field of endeavor that Chrissey is directed toward:

"Biomolecules, preferably nucleic acids, have been immobilized on a variety of solid surfaces, for a number of known applications, including DNA and RNA oligomer synthesis; separation of desired target nucleic

acids from mixtures of nucleic acids including RNA; conducting sequence-specific hybridizations to detect desired genetic targets (DNA or RNA); creating affinity columns for mRNA isolation; quantification and purification of PCR reactions; characterization of nucleic acids by AFM and STM; and for sequence determination of unknown DNAs, such as the human genome. A number of methods have been employed to attach nucleic acids to solid surfaces, but there is an increasing need to immobilize multiple nucleic acids of unique or distinct sequences and which retain their specific functions in a high resolution, spatially controlled fashion on rugged, solid substrates.

The above applications have used a variety of substrates for DNA immobilization, including polymeric membranes (nylon, nitrocellulose), magnetic particles, mica, glass or silica, gold, cellulose, and polystyrene."

In the instant rejection under discussion, it is essential that the Examiner find some motivation or suggestion to make the claimed invention in light of the prior art teachings. In order to find such motivation or suggestion there should be a reasonable likelihood that the claimed invention would have the properties disclosed by the prior art teachings. These disclosed findings should be made with a complete understanding of the first three "*Graham v. John Deere*" factors. Thus, it is mandatory to (1) determine the "scope and content of the prior art"; (2) ascertain the "differences between the prior art and the claims at issue"; and (3) determine "the level of ordinary skill in the pertinent art."

The Spada case cited above is again reiterated here with respect to the instant obviousness rejection as: "...the reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." Clearly, the section cited above from Clem provides no teaching basis to select a particular fluorinated compound found in Chrisey with it. The two patents do mention substrates, but the focus of each patent is toward a totally different discipline.

There is no suggestion in the text of the Clem reference that would lead one skilled in the art to combine the contents thereof with the Chrisey reference, and *vice versa*.

The rejections noted above citing the combination of Clem with Chrisey do not disclose or even imply the claims of the present invention as now amended. In the rejection, the

Examiner is selectively picking and choosing individual elements disclosed in the references to the exclusion of what the references as a whole teach to one skilled in the art. For example, to arrive at Applicants' invention, the person skilled in the art would have to randomly pick and choose among an exponential number of different molecular species having generic functional groups found in Clem with the only guidance as to what species to select being that provided by Applicants' disclosure. Based upon the skilled artisan's reading and knowledge of the systems disclosed and their respective objectives and how they are implemented, it is unlikely that the person skilled in the art would use the combination of references cited. Also note that Claim 1 has been amended to a different scope from that as filed.

In order to analyze the propriety of the Examiner's rejections in this case, a review of the pertinent applicable law relating to 35 U.S.C. § 103 is warranted. The Examiner has applied the two references discussed above using selective combinations to render obvious the invention.

The Court of Appeals for the Federal Circuit has set guidelines governing such application of references. These guidelines are, as stated are found in Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1143, 227 USPQ, 543, 551:

When prior art references require selective combination by the court to render obvious a subsequent invention, there must be some reason for the combination other than hindsight gleaned from the invention itself.

A representative case relying upon this rule of law is Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 5 USPQ 2d 1434 (Fed. Cir. 1988). The district court in Uniroyal found that a combination of various features from a plurality of prior art references suggested the claimed invention of the patent in suit. The Federal Circuit in its decision found that the district court did not show, however, that there was any teaching or suggestion in any of the references, or in the prior art as a whole, that would lead one with ordinary skill in the art to make the combination. The Federal Circuit opined:

Something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. [837 F.2d at 1051, 5 USPQ 2d at 1438, citing Lindemann, 730 F.2d 1452, 221 USPQ 481, 488 (Fed. Cir. 1984).]



The Examiner has selected a specific compound from Chrisey for the sake of showing the individual species claimed by Applicants without regard to the total teaching of the two references. There is no suggestion in Clem based upon the disclosure at Col. 11, line 47 to Col. 12 line 10 that would lead the skilled artisan to select a specific compound e.g., (tridecafluoro 1,1,2,2-tetrahydrooctyl) trichlorosilane in combination with Clem.

The Examiner in his application of the cited references is improperly picking and choosing. The rejection is a piecemeal construction of the invention. Such piecemeal reconstruction of the prior art patents in light of the instant disclosure is contrary to the requirements of 35 U.S.C. § 103.

The ever present question in cases within the ambit of 35 U.S.C. § 103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

This holding succinctly summarizes the Examiner's application of references in this case, because the Examiner did in fact pick and choose so much of the Clem and Chrisey references to support the rejection and did not cover completely in the Office Action the full scope of what these varied disclosure references fairly suggest to one skilled in the art.

Further, the Federal Circuit has stated that the Patent Office bears the burden of establishing obviousness. It held this burden can only be satisfied by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the reference.

Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the

combination." ACS Hosp. Sys., 732 F.2d at 1577, 221 USPQ at 933. [837 F.2d at 1075, 5 USPQ 2d at 1599.]

The court concluded its discussion of this issue by stating that teachings or references can be combined only if there is some suggestion or incentive to do so. The suggestion in Clem, assuming there is one to begin with, is too broad as to be vague and unclear. The requisite specificity is not present.

Applicants have amended Claim 1 to place it and the other dependent claims, such as Claim 12, in a form which should result in their allowability.

The Examiner is respectfully requested to reconsider his rejection of Claim 13 under 35 U.S.C. §103(a) as being unpatentable over Clem (United States Patent 6518,168) as applied to Claim 5 and further in view of Wefers et al. (United States Patent 5,059,258).

The non-applicability of the Clem patent to the instant claims is discussed in detail above, and the contents of such discussion is hereby incorporated by reference herein.

The Wefers invention relates to a process for forming a duplex coating on the surface of an aluminum substrate such as sheet. It relates to a protective coating on metallic aluminum which comprises an aluminum hydroxide layer on the metal surface and a functionalized layer of phosphonic/phosphinic acid chemically bonded to the hydroxide layer.

Claim 1 now does not provide for the process disclosed by Wefers. The arguments and supporting case law precedents set forth above discussing the Clem/Chrissey rejection are incorporated *verbatim* at this site with respect to the rejection of Claim 13 as unpatentable over Clem in view of Wefers et al. There is no basis to combine the two references as they are directed to opposite technical disciplines. The only apparent reason that Wefers was cited was that it lists a phosphonic acid as disclosed by Applicants. There is no suggestion in Clem that the particular species listed by Wefers are equivalent to the

generic list that Clem discloses. As stated above, in this instance the Examiner is picking and choosing without noting the total content of what the references disclose as a whole.

The Examiner is respectfully requested to reconsider his rejection of Claim 24 under 35 U.S.C. §103(a) as being unpatentable over Clem (United States Patent 6518,168) as applied to Claim 23 and further in view of Liang et al. (United States Patent 5,871,579).

The arguments and supporting case law precedents set forth above discussing the Clem/Chrissey and Clem/Wefers rejections are incorporated *verbatim* at this site with respect to the rejection of Claim 14 as unpatentable over Clem in view of Liang, et al. There is no basis to combine the two references as they are directed to totally opposite disciplines. The only reason that Liang was cited was that it lists organic/inorganic hybrids as disclosed by Applicants. There is no suggestion in Clem that the species listed by Liang are equivalent to the generic list that Clem discloses. As stated above, in this instance the Examiner is picking and choosing without noting the total content of what the references disclose as a whole.

The Examiner is respectfully requested to reconsider his rejection of Claim 25, 26 and 28 under 35 U.S.C. §103(a) as being unpatentable over Clem (United States Patent 6518,168) as applied to Claim 23 and further in view of Hawker et al. (United States Patent 6,425,465).

Hawker states that attempts to perform chemistry on patterned spin-cast films, or to employ these films in solvating environments, often fail because the films dissolve or swell in typical reaction media. Hawker uses polymer brushes, in contrast to patterned spin-cast films. This process is antithetical to Applicants' process as Applicants use a spin coating which Hawker says "often fails." The two teachings are also diametrically opposite. The skilled artisan would not look to the Hawker reference in combination with Clem as Hawker states that one segment of Applicants' process is not effective.

The arguments and supporting case law precedents set forth above discussing the Clem/Chrissey and Clem/Wefers Clem/Liang rejections are incorporated *verbatim* at this

site with respect to the rejection of Claims 25, 26 and 28 as unpatentable over Clem in view of Hawker et al. There is no basis to combine the two references as they are directed to totally opposite disciplines. The sole purpose for citing Hawker was that it lists a polymer brush. Applicants' Claim 1 et al. have been amended and the reference to a stamp has been eliminated.

The Examiner is respectfully requested to reconsider his rejection of Claim 27 under 35 U.S.C. §103(a) as being unpatentable over Clem (United States Patent 6518,168) as applied to Claim 23 and further in view of Schildkraut, et al. (United States Patent 5,115,336).

The arguments and supporting case law precedents set forth above discussing the Clem/Chrissey and Clem/Wefers, Clem/Liang Clem/Hawker rejections are incorporated *verbatim* at this site with respect to the rejection of Claim 27 as unpatentable over Clem in view of Schildkraut et al. There is no basis to combine the two references as they are also directed to totally opposite disciplines. The only reason that Schildkraut was cited was that it lists a metallo-organic complex.

With respect to the rejections of the claims using the Chrissey, Wefers, Liang and Schildkraut references, there is no suggestion in Clem to employ the specific compounds or steps mentioned in the references. In these references there is no mention therein of a monolayer and a thin film as Applicants have explained in the specification. As to the references cited, there is a mismatch in the technologies covered therein. The Patent Office Board of Appeals in its opinions is continuously citing case precedent to emphasize that a proper case for prima facie obviousness must include motivations to combine that are "articulated reasoning with some rational underpinning". Unsupported assertions are not adequate. It is respectfully submitted that the Examiner in his "obviousness" rejections has not established the proper basis to combine in each of the obviousness rejections discussed above.

As to the Clem/Chrissey and Clem/Wefers, Clem/Liang Clem/Hawker Clem/Schildkraut rejections, case law guidelines edifying the criteria for a §103(a) combination rejection are consistent in their requirements.

1. The prior art references themselves must suggest combination. Failing explicit self-suggestion, the prior art must provide the motivation for obviousness in combination. Such motivation may be found by considering the references holistically. If the purpose/problem being solved ("nature of the problem"), function and structure of the prior art references are aligned, one may reasonably conclude combination of the references obvious, as no differences exist in the principles of operation between the references. The initial burden of meeting this criterion by logical exposition belongs to the Examiner. In this case, the Examiner has not done so.

2. To combine references without evidentiary support, at least some suggestion or motivation, by the prior art constitutes impermissible hindsight. Combination of prior art with different principles of operation is impermissible. An Examiner cannot simply assert, as he has done in this case, it is "well within the ordinary skill of the art at the time the claimed invention was made".

3. To be construed anticipatory, the prior art must teach or at least suggest all claim limitations, whether such limitations appears in the preamble or body of a claim.

4. The final test is comparing the claimed invention as a whole to a prior art reference. Claim limitations are not puzzle pieces to be matched to atomized prior art reference suggestions, and thus examined out of context. As with obviousness in combining prior art references, only if the prior art aligns with the claimed invention in principles of operation may a prior art reference be considered anticipatory.

MPEP 2143 states "To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to

make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure." *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The initial burden is on the Examiner to provide some suggestion of the desirability of doing what the inventor has done. "*To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.*" *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). This has not been done in the instant application.

When applying 35 U.S.C. 103, the following tenets of patent law must be adhered to:

- (A) The claimed invention must be considered as a whole;
- (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination;
- (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention; and
- (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

In the instant application the Examiner has not considered the invention as a whole and has improperly picked and chosen among elements found in the secondary references without regard to the overall teachings of the references and with no suggestion to combine in the primary reference.

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to

those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)

A statement that modifications of the prior art to meet the claimed invention would have been " 'well within the ordinary skill of the art at the time the claimed invention was made' " because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000)

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Thus Claims 2 – 30 are allowable.

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims prima facie obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) Distilling an invention down to the "gist" or "thrust" of an invention disregards the requirement of analyzing the subject matter "as a whole." *W.L.*

*Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)

In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984)

It is respectfully submitted that the case law cited above states the requirements for a proper rejection of a claim pursuant to 35 USC §103(a). It is further respectfully submitted that the Examiner has failed to meet the standards provided in the case law precedent because there is no proper basis to combine the Chrisey, Wefers, Liang and Schildkraut references individually with the Clem primary reference.

In response to Applicants' amendment of Claim 1 to exclude further post-deposition processing, the Examiner has stated in his *Response to Arguments* that "Clem may not require a post processing step" The Examiner has supported his assertion with two citations from the Clem specification which he asserts "would not require further post deposition processing." The Examiner concedes that Clem does say that Clem recites the need for post deposition treatment. There is no positive recitation in the Clem disclosure that says that some of the embodiments do not require post deposition treatment. The Examiner is inferring from the text that no treatment is necessary- but that is the Examiner's assertion- not the Clem disclosure.

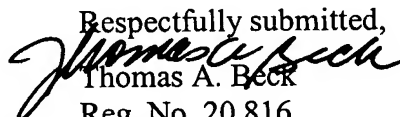
The Examiner's remarks noted above as to "post deposition processing" and other assertions made as to the teachings found in the references cited during the course of the prosecution of this application are incomplete as he has not provided the proper



foundation for his assertion maintaining the rejection. The remarks relating to that portion of the rejection of Claim 1 relating to "post deposition processing" (and others) is based upon assertions by the Examiner as to the teaching content of the Clem prior art reference. 37 C.F.R. 1.104(d)(2) states "...When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant and other persons..."

Applicants submit that the Examiner should comply with the excerpt of 37 CFR 104 cited above and provide the required information relating to the Clem reference. If the Examiner wishes to apply a reference and seeks to interpret it by going beyond the scope of the written word in the reference itself in applying the rejection, he must either cite an accompanying reference to support his position, or he must comply with the provision of 37 C.F.R. 1.104(d)(2).

In view of the arguments and modifications to the claims, allowance of this case is warranted. Such favorable action is respectfully solicited. If the Examiner wishes to discuss via telephone the substance of any of the proposed claim changes contained herein with the intent of putting them into an allowable form, Applicants' attorney will be glad to speak with him at a mutually agreeable time and will cooperate in any way possible.

Respectfully submitted,  
  
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DATE OF DEPOSIT: September 2, 2008

I certify that this amendment was deposited with the United States Postal Service via Express Mail Service on the date shown above addressed to: Assistant Commissioner of Patents, P.O. Box 1450. Alexandria, VA 22313-1450

Signature  Date: September 2, 2008  
Name: Thomas A. Beck